

REMARKS

The drawings were objected to by the Examiner because in Figure 3 the input to reference 62 before the arrow is stated as "To box 10" when it should be "From box 10". In Figure 3, the word "to" has been deleted and the word "from" inserted as kindly suggested by the Examiner. Approval by the Examiner of the changes to the drawings is respectfully requested. Formal drawings incorporating the changes are also submitted herewith under separate Letter to the Official Draftsperson.

By this amendment, the specification has been amended to reflect the U.S. patent numbers of related cases and to correct typographical errors kindly pointed out by the Examiner.

Claims 1-10 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,633,662 to Allen et al. in view of U.S. Patent No. 6,327,052 to Falk further in view of U.S. Patent No. 5,857,063 to Poe et al.

The Examiner is correct when he notes that Allen et al. do not disclose a method of determining an input colorant amount for each color channel of a pixel wherein the input code value has a nonlinear relationship to the colorant amount. Applicants have recognized that by using this nonlinear relationship, improved images can be produced. As pointed out on page 6 of the application, an advantage of the present invention is that the maximum amount of colorant is more accurately controlled for a multilevel printer and does not use excess colorants and produces an esthetically pleasing image free from artifacts. Applicants believe they are the first to use this nonlinear relationship in controlling the amount of colorant that is deposited for a pixel. Clearly, there is no motivation in Allen et al. for this claimed subject matter, which is set forth in claim 1. Allen et al. use a linear relationship.

Falk relates to a method of converting from a colorant control signal space (CMYK) back to original color amounts (see column 3, lines 5-20 and lines 45-49). There may be confusion with the nomenclature. When Falk refers to "colorant amount", that corresponds to what the present invention calls a "code value" or a "control signal". Falk uses the term "colorant amount" to mean a colorant control signal, because Falk implicitly assumes there is a linear relationship between the two. The invention of Falk is directed to determining

colorant color signals for a printer necessary to produce a desired color. Falk is not concerned with how much physical colorant is to be deposited at any location in the image. Falk does not recognize that there may be a nonlinear relationship between the colorant control signal and the colorant amount. Falk has no disclosure which discusses limiting the amount of colorant amounts to prevent excess colorants from being deposited. Falk does not recognize the nonlinear relationship required by claim 1. Therefore, Applicants fail to see why Falk would even be combinable with Allen et al. but, if it could, it would provide no motivation for the subject matter of claim 1.

Turning to Poe et al., Applicants note that this is a commonly assigned Eastman Kodak Company patent. In column 8, lines 45-48 and 65-67, it is true that Poe et al. talk about a nonlinear function, but this nonlinear function relates the input color space (RGB) to a colorant control signal space (CMYK). The colorant control signal space would be equivalent to the code values in the current invention and is not the same as the colorant amount. The purpose of the nonlinear function in Poe et al. is to control the amount of black used in different parts of color space and does not describe the relationship between the colorant control signal and the colorant amount. Furthermore, Poe et al. assume, in column 9, lines 9-12 that there is a linear relationship between colorant control signal space (CMYK) and colorant amount. This is evidenced by the fact that Poe et al. compute a total colorant amount by simply summing up the CMYK control signals. Applicants have recognized that the CMYK control signals are not linear with colorant amount in multilevel printers. This is inconsistent with the assumption made by Poe et al. Applicants are familiar with the limitations imposed by the Poe et al. assumptions, and in fact the present invention overcomes those limitations. There is no motivation in Poe et al. for the subject matter of claim 1. Even assuming Poe et al. could be combined with Allen et al., there is still no recognition of a nonlinear relationship between code values and colorant amount as required by claim 1 of the present invention.

The remaining claims depend upon claim 1 and should be allowed along with it.

In view of the foregoing, it is believed none of the references, taken singly or in combination, disclose the claimed invention. Accordingly, this

application is believed to be in condition for allowance, the notice of which is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'R. Owens', written over a horizontal line.

Raymond L. Owens
Attorney for Applicants
Registration No. 22,363

RLO:JMD
Telephone 585-477-4653
Facsimile 585-477-4646
Enclosures

If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.

Amendments to the Drawings:

Replacement sheets for FIGS. 1-4 are enclosed which formalize the drawings that were submitted with the application. The attached sheets incorporate the changes to Figure 3 (FIG. 3) required by the Examiner. These sheets replace the original Figures 1-4. Approval by the Examiner is respectfully requested.

Attachment: Replacement Figures 1-4

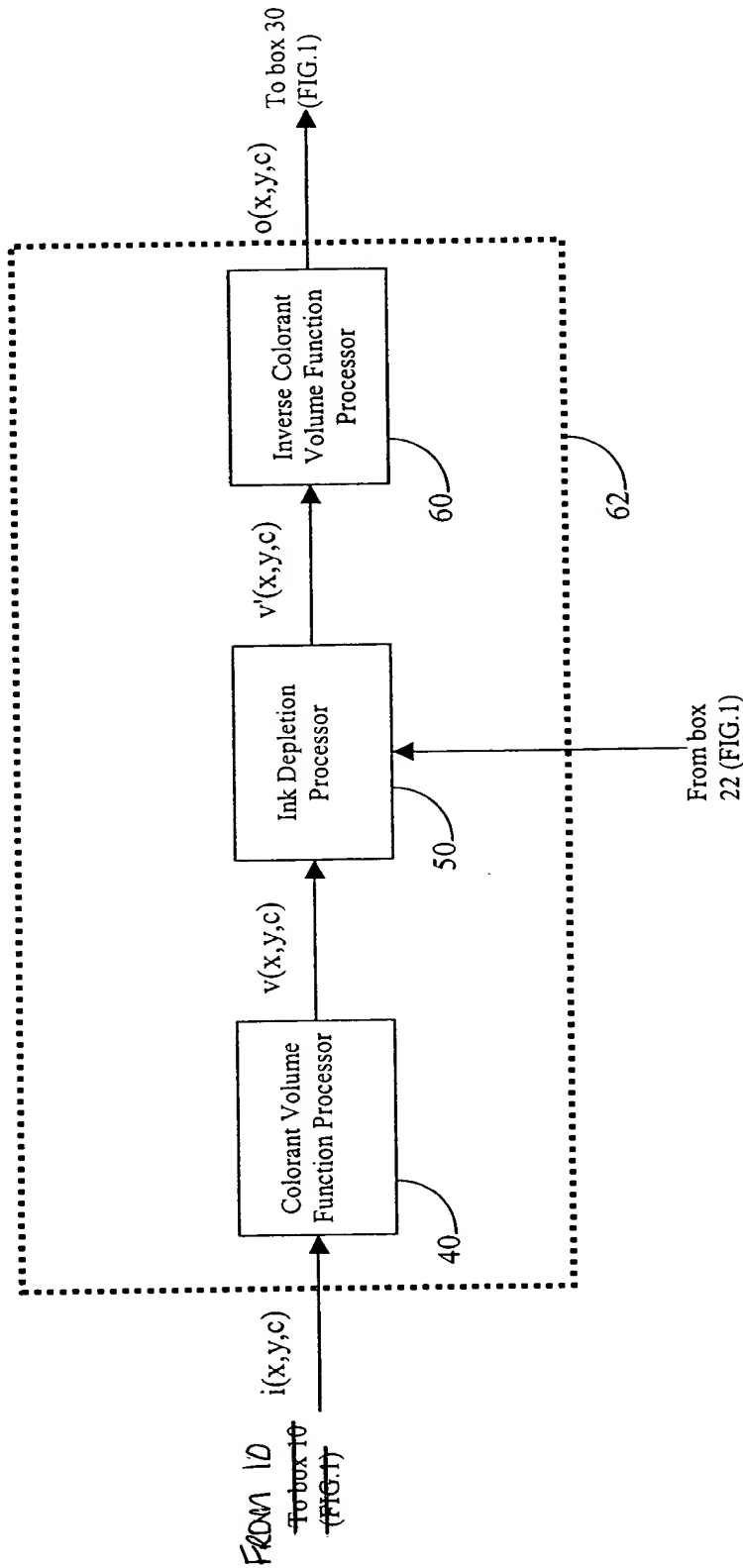


FIG. 3